Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Industrial Wastewater

BWP IW 38 & BWP IW 39

Permit for Industrial Sewer User

W210520
Transmittal Number

Facility ID# (if known)

DEP Use Only

Date Received

Important Instructions for Completing This Form

The questions on this form apply to existing and new facilities discharging industrial wastewater to sewers. If you are completing this form for an existing facility, answer the questions as they apply to its current status. If you are completing this form for a new facility, your answers will reflect your commitment to comply with the requirements as set forth in each question.

Existing facilities are defined as facilities in existence as of July 12, 2007. New facilities are defined as facilities constructed after July 12, 2007.

Answer all questions, except those that you are directed to skip. Please DO NOT answer questions that you are directed to skip

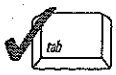
Permit Category (Select One)

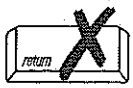
☒ BWP IW 38: Industrial Sewer User in IPP POTW discharging more than 50,000 GPD

☐ BWP IW 39: Industrial Sewer User in Non-IPP POTW discharging more than 25,000 GPD

A. Facility Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





Vitasoy USA
1a. Facility Name

1 New England Way
1b. Facility Address 1

1c. Facility Address 2

Ayer	MA	01432
1d. City	1e. State	1f. Zip Code

978-772-6880	978-772-6881
1g. Phone Number	1h. Fax Number

94-25-59642
1i. Federal Employer Tax Identification Number (FEIN or TIN)

Mailing Address: ☒ Check here if same as Facility Address and skip to Contact Information.

2a. Mailing Address: Street or P.O. Box

2b. Mailing Address 2

2c. City	2d. State	2e. Zip Code

Contact Information:

Dan MacPhail
3a. Contact Person Name

Project Engineering Manager
3b. Contact Person Title

978-772-6880	3130
3c. Phone Number	3d. Extension

dan.macphail@vitasoy-usa.com
3e. Email Address

B. Industrial Wastewater Information

1. Project Description (Check All That Apply)

☐ 1a. New Construction

☐ 1b. Permit Renewal

☐ 1c. Increasing Flow From Existing Connection

☐ 1d. New or Modified Industrial Wastewater Pretreatment System (IWPS)

☒ 1e. Existing Unpermitted Connection (Constructed Before 7/12/07)

2. List, in descending order of significance, the Standard Industrial Classification (SIC) codes, which best describe the facility producing the discharge in terms of the principal products or services provided. Also, specify each classification title. (See Appendix B in the Instructions)

2099 2a. SIC Code	Food Preparations - NEC Description
2b. SIC Code	Description
2c. SIC Code	Description
2d. SIC Code	Description

3. List all sewer connection(s) and their maximum daily flow(s) in gallons per day (GPD) from your facility going to the Publicly Owned Treatment Works (POTW):

	1 3a. Connection #	2 3b. Connection #	3c. Connection #	3d. Total Flow, All Connections
SANITARY	20000 GPD	GPD	GPD	20000 GPD
INDUSTRIAL	GPD	109540 GPD	GPD	109540 GPD
TOTAL	20000 GPD	109540 GPD	GPD	129540 GPD

4. Are you in compliance with the Massachusetts Historical Commission requirements?

☒ Yes ☐ No* *If No, You Must Comply With Massachusetts Historical Commission Requirements **BEFORE** You Can Submit This Application.

5. Are you in compliance with Massachusetts Environmental Policy Act (MEPA) requirements?

☒ Yes ☐ No* *If No, You Must Comply With MEPA Requirements **BEFORE** You Can Submit This Application.

B. Industrial Wastewater Information (continued)

6. Check all pollutants that are present in your industrial wastewater **before** pretreatment, or if not treated, before discharge:

☒ 6a. Metals, Asbestos, Cyanide, Phenols

If Metals, Asbestos, Cyanide, or Phenols are present, provide concentrations in milligrams per liter (mg/L):

1. Antimony (total) (Sb)	mg/L	9. Nickel (total) (Ni)	0.058 mg/L
2. Arsenic (total) (As)	mg/L	10. Selenium (total) (Se)	mg/L
3. Beryllium (total) (Be)	mg/L	11. Silver (total) (Ag)	mg/L
4. Cadmium (total) (Cd)	mg/L	12. Thallium (total) (Tl)	mg/L
5. Chromium (hexavalent)	mg/L	13. Zinc (total) (Zn)	0.057 mg/L
6. Chrome (total) (Cr)	mg/L	14. Asbestos	mg/L
7. Copper (total) (Cu)	0.029 mg/L	15. Cyanide (total) (CN)	mg/L
8. Lead (total) (Pb)	mg/L	16. Phenols (total)	mg/L

☒ 6b. Toxic Pollutants (See Section 17B in the Instructions.)

If Toxic Pollutants are present, provide the total Toxic Pollutants concentration in micrograms per liter (ug/L):

NONE
6b1. Total Toxic Pollutants Concentration (ug/L)

NOTE: Use the **Toxic Pollutants Form** to list individual toxic chemicals and their concentrations.

☐ 6c. Total Petroleum Hydrocarbons (TPH) > 15 mg/L

☐ 6d. pH <5 and >10 Standard Units (S.U)

☒ 6e. Other*

*If Other Pollutants are present, describe them:

BOD & TSS Limits = 400 mg/l, average for Dec 07, Jan & Feb 08 = < 100. Oil and grease limit = 100 mg/l and average is 10

B. Industrial Wastewater Information (continued)

7. Is Mercury (Hg) present in your industrial wastewater **before** pretreatment, or if not treated, before discharge?

☐ Yes ☒ No* *If No, skip to Question 8.

7a. If Yes, have you identified all possible mercury sources and taken all reasonable steps to eliminate the mercury?

☐ Yes* ☐ No *If Yes, skip to Question 8.

7b. If No, explain why.

NOTE: As of May 1, 2009, all facilities must meet a discharge limit of 1 part per billion (ppb) for Mercury.

8. What is the name of the Publicly Owned Treatment Works (POTW) that receives your wastewater? (See Appendix C in the Instructions.)

19, Ayer
Name of POTW

9. Do you have a current sewer connection discharge permit or a current written approval issued by your local POTW? (See Section 17B in the Instructions.)

☒ Yes ☐ No* *If No, you must obtain either a permit or, if a permit is not required, a written approval from your local POTW to discharge **BEFORE** you can submit this application.

If you have a permit, provide the following information, then skip to Question 10.

016
9a. Permit Number

12/31/2010
9b. Permit Expiration Date

If you have a written approval, provide the following information:

6/5/07
9c. Date of Approval Letter

Mike Madigan
9d. Name of Person Who Signed the Letter

10. Are your POTW and local Sewer Authority the same entity? (See Section 17B in the Instructions.)

☒ Yes* ☐ No *If Yes, skip to Question 12.

B. Industrial Wastewater Information (continued)

11. Do you have a current sewer connection discharge permit or a current written approval issued by your local Sewer Authority? (See Section 17B in the Instructions.)

☐ Yes ☐ No* If No, you must obtain either a permit or written approval from your local Sewer Authority to discharge **BEFORE** you can submit this application.

If you have a permit, provide the following information, then skip to Question 12.

11a. Permit Number

11b. Permit Expiration Date

If you have a written approval, provide the following information:

11c. Date of Approval Letter

11d. Name of Person Who Signed the Letter

12. Is your facility currently classified as a Categorical Industrial User (CIU) pursuant to Federal Regulations? (See Appendix D in the Instructions.)

☐ Yes ☒ No* *If No, skip to Section C.

12a. List all the Categorical Pretreatment Standards applicable to your facility.

12a1. Part Number — Point Source Category

12a2. Part Number — Point Source Category

12a3. Part Number — Point Source Category

12a4. Part Number — Point Source Category

C. Industrial Wastewater Pretreatment System

1. Do you have an on-site industrial wastewater pretreatment system (IWPS) to treat your industrial wastewater?

☒ Yes ☐ No* *If No, skip to Section D.

1a. How many IWPSs do you have?

1
Number

NOTE: If you have more than one IWPS, please use an **Additional IWPS Form** for each additional IWPS.

1b. Provide a unique identifier (i.e. name) for this IWPS:

Vitasoy WWTP
Identifier/Name

C. Industrial Wastewater Pretreatment System (continued)

1c. What is the Total Design Capacity of this IWPS?

135,000
Gallons Per Day

1d. What is the Average Daily Flow of this IPWS? (Estimate if this is a new facility.)

75,000
Gallons Per Day

1e. What is the Maximum Daily Flow of this IWPS? (Estimate if this is a new facility.)

109,540
Gallons Per Day

2. Is your IWPS designed and constructed to meet all local discharge standards and the applicable Categorical Industrial User (CIU) standards in 40 CFR Chapter I, Subchapter N?

☒ Yes ☐ No* *If No, you must take immediate steps to address the non-compliance **BEFORE** you can submit this application.

3. Does this IWPS treat hazardous industrial wastewater or hazardous industrial wastewater sludge as defined in 314 CMR 7.02?

☐ Yes ☒ No* *If No, skip to Question 12.

3a. Are you treating concentrated chemical baths, e.g. spent chemical baths, or off-specification products?

☐ Yes ☐ No* *If No, skip to Question 4.

3b. If Yes, describe the concentrated chemical baths you are treating.

4. Does your IWPS meet the requirements of "treatment which is an integral part of the manufacturing process" as defined in 310 CMR 30.010?

☐ Yes* ☐ No *If Yes, skip to Question 7.

5. Do you store hazardous industrial wastewater or hazardous industrial wastewater sludge that is generated in your IWPS or in your production processes, in tanks or containers?

Note: If you use in-ground tanks for storage of hazardous industrial wastewater or sludge and your IWPS is located in a Drinking Water Zone (see Section 17C of the Instructions; reference language in 310 CMR 30.605), you are not eligible to apply for a BWP IW 38 or BWP IW 39 permit. You must use form BWP IW 40 instead.

☐ Yes ☐ No* *If No, skip to Question 7.

C. Industrial Wastewater Pretreatment System (continued)

6. Are you in compliance with the requirements for tanks and containers in 310 CMR 30.342 and 343? (See Section 17C in the Instructions)

☐ Yes ☐ No* *If No, you must take immediate steps to address the non-compliance **BEFORE** you can submit this application.

7. Do you have a U.S. Environmental Protection Agency (EPA) hazardous waste generator identification number?

☐ Yes ☐ No* *If No, skip to Question 7b.

7a. What is your EPA identification number?

_____ Skip to Question 8.
EPA ID #

7b. Explain why you do not have an EPA identification number.

_____

_____

_____

8. Do you have a visible sign in place that warns against unauthorized entry into the IWPS area?

☐ Yes* ☐ No *If Yes, skip to Question 9.

8a. Explain why you do not have a visible sign in place.

_____

_____

_____

9.Do you have the required spill containment for the IWPS? (See Section 17C in the Instructions.)

☐ Yes* ☐ No *If Yes, skip to Question 10.

9a. Explain why you do not have the required spill containment.

_____

_____

_____

10. Is your IWPS located on land subject to flooding from a 100-year storm? (See Section 17C in the Instructions.)

☐ Yes ☐ No* *If No, skip to Question 12.

C. Industrial Wastewater Pretreatment System (continued)

11. Are you in compliance with the flood-proofing provisions in 310 CMR 30.701(2)? (See Section 17C in the Instructions.)

☐ Yes ☐ No* *If Yes, skip to Question 12.

11a. Explain why you are not in compliance with the flood-proofing provisions in 310 CMR 30.701(2).

12. What type of IWPS do you have? (Check all that apply.)

☒ Fully Automated Industrial Wastewater Pretreatment System (FAIWPS)

☒ Continuous Discharge IWPS ☐ Batch IWPS

13. Is the IWPS exempt from classification? (See Section 17C in the Instructions.)

☐ Yes* ☐ No *If Yes, skip to Question 14.

13a. What is the classification of this IWPS? (See 257 CMR 2.13: Classification of Wastewater Treatment Facilities.)

☐ Class 1I ☐ Class 2I ☐ Class 3I

☐ Class 4I ☐ Class 5 or 6C ☐ Class 1M

☐ Class 2M ☐ Class 3M ☒ Class 4M

13b. How was the IWPS' classification determined?

☐ In accordance with the requirements in 314 CMR 7.05(2)(g) 4. c. or d.

☐ By the Board of Certification of Operators of Wastewater Treatment Facilities

☒ Both

14. Is the IWPS staffed in accordance with the requirements of 314 CMR 7.05(2)(g) 5? (See Section 17C in the Instructions.)

☒ Yes* ☐ No *If Yes, skip to Question 15.

C. Industrial Wastewater Pretreatment System (continued)

14a. Explain why the IWPS is not staffed in accordance with 314 CMR 7.05(2)(g) 5.

15. Is this your first permit application under Permit Category BWP IW 38 or BWP IW 39 for this IWPS? Or, is this application a request for modification of this IWPS that currently has a BWP IW 38 or BWP IW 39 permit?

☒ Yes* ☐ No

*If Yes, you need to submit as an attachment the process flow diagram and description of the principal treatment processes for your IWPS. Otherwise, skip to Question 17.

16. How many attachments are included with this application in response to Question 15?

2 - Attachments B. and C.
Number of Attachments

17. Have your sewer connection and IWPS been designed and constructed in compliance with the design and construction standards as set forth in 314 CMR 7.05(2)(g)3?

☒ Yes ☐ No*

*If No, skip to Question 17b.

17a. What is the Massachusetts Registered Professional Engineer (MAPE) signature date on the engineering plans?

Bennett & Associates 1987
Date

Skip to Question 18.

17b. Explain why your sewer connection and IWPS have not been designed and constructed in compliance with the design and construction standards as set forth in 314 CMR 7.05(2)(g)3.

18. Provide the following information about the Massachusetts Registered Professional Engineer (MAPE) who reviewed, stamped, and signed your engineering plans:

M. Bennett 18a. Name	612-435-5748 18b. Phone Number
Not Available 18c. Mass. P.E. License Number	MN PE # 12399 18d. Mass. P.E. Specialty

C. Industrial Wastewater Pretreatment System (continued)

19. Do you have an IWPS operation and maintenance manual that complies with the procedures and other requirements in 314 CMR 7.05(2)(g)6.?

☒ Yes* ☐ No *If Yes, skip to Question 20.

19a. Explain why you do not have the required IWPS operation and maintenance manual.

20. Are you keeping your IWPS operation and maintenance manual current?

☒ Yes ☐ No

21. Are you implementing your IWPS operation and maintenance manual?

☒ Yes ☐ No

D. Monitoring, Reporting & Recordkeeping

1. Are you keeping your currently effective sewer discharge permit(s), IWPS plan(s), and current operation and maintenance manual(s) (as applicable) on-site at all times?

☒ Yes* ☐ No * If Yes, skip to Question 2.

1a. Explain why you are not keeping these records on-site at all times.

2. Are you keeping all your required records including your wastewater monitoring and analyses records, operation and maintenance records and logs, bills of lading, summary reports of all incidents requiring implementation of the safety plan, and hazardous waste manifests (as applicable) on-site for at least three years?

☒ Yes* ☐ No * If Yes, skip to Question 3.

2a. Explain why you are not keeping these records on-site for at least three years.

D. Monitoring, Reporting & Recordkeeping (continued)

3. [Reserved for Toxics Reporting]

Additional reporting requirements will be added to this section in the future.

E. General & Specific Prohibitions

1. After carefully reviewing all of the general and specific prohibitions listed below, are you in compliance with these General and Specific Prohibitions?

☒ Yes* ☐ No *If Yes, read Section F and then complete Section G.

1a. Identify all the prohibitions you are not in compliance with and explain why. Attach an additional sheet of paper to this form, if necessary.

1. General Prohibitions. The permittee shall not:

a. Discharge, or cause to be discharged to a POTW, any substances, materials, or wastewater that may:

i. harm the sewers, POTW wastewater treatment process or equipment;
ii. have an adverse impact on the receiving waters; or
iii. otherwise create a nuisance or endanger public health, safety, or the environment.

b. Introduce pollutants into POTWs that pass through the POTW or interfere with its operation or performance.

c. Discharge wastewater or allow discharge of wastewater through any sewer connection that would result in a hazard to the public health or safety.

d. Discharge bypass wastewater or allow discharge of bypass wastewater through any sewer connection. If bypassing due to an emergency condition occurs, the Department and POTW shall be notified in accordance with 314 CMR 7.04(3). Such notification or its acknowledgement shall not be construed as permission by the Department or POTW to discharge bypass wastewater.

e. Discharge hazardous waste or allow the discharge of hazardous waste through any sewer connection.

2. Specific Prohibitions. The permittee shall not introduce into a POTW or its wastewater collection system the following:

a. Pollutants which may create a fire, explosion, or other hazard in the POTW or its wastewater collection system.

b. Pollutants which may cause corrosive structural damage to the POTW or its wastewater collection system. In no case shall discharges with a pH lower than 5.0 Standard Unit (S.U) or more than 10.0 S.U. be allowed, unless the local limit allows such discharges.

c. Solid or viscous pollutants in amounts which may cause obstruction to the flow in the POTW or its wastewater collection system or may result in interference.

d. Any pollutant, including oxygen-demanding pollutants, discharged at a flow rate or pollutant concentration that will cause interference with the POTW or its wastewater collection system.

e. Heat in amounts which may inhibit biological activity in the POTW, resulting in interference. In no case shall heat in such quantities that the temperature at the POTW treatment plant exceeds 40° C (104° F) be discharged, unless the Department, upon request of the POTW, approves alternate temperature limits.

F. Additional Conditions

a. All discharges shall be in compliance with the terms and conditions of this permit. The discharge of any wastewater at a level in excess of that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit. Such a violation may result in the imposition of civil and/or criminal penalties as provided for in M.G.L. c.21, Section 42.

b. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

i. Violation of any terms or conditions of the permit;

ii. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; or

iii. A change in conditions or the existence of a condition, which requires either a temporary or permanent reduction, or elimination of the authorized discharge.

c. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges; nor does it authorize or relieve the permittee of any liability for any injury to private property or any invasion of personal rights; nor any infringement of Federal, State, or local laws or regulations; nor does it waive the necessity of obtaining any local assent required by law for the discharge authorized herein by the Department.

d. The provisions of this permit are severable, and the invalidity of any condition or subdivision thereof shall not make void any other condition or subdivision thereof.

e. All information and data provided by an applicant or a permittee identifying the nature and frequency of a discharge shall be available to the public without restriction. All other information (other than effluent data) which may be submitted by an applicant in connection with a permit application shall also be available to the public unless the applicant or permittee is able to demonstrate that the disclosure of such information or particular part thereof to the general public would divulge methods or processes entitled to protection as trade secrets in accordance with the provisions of M.G.L. c.21, Section.27(7). Where the applicant or permittee is able to so demonstrate, the Department shall treat the information or the particular part (other than effluent data) as confidential and not release it to any unauthorized person. Such information may be divulged to other officers, employees, or authorized representatives of the Commonwealth or the United States Government concerned with the protection of public water or water supplies.

f. Transfer of Permits. Any sewer system connection permit authorizing an industrial discharge to a sewer system is only valid for the person to whom it is issued, unless prior to transfer:

i. The current permittee notifies the Department in writing at least 30 days in advance of the proposed transfer date; and

ii. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibilities, and liability to the new permittee.

g. This permit authorizing the discharge expires five (5) years from the date of issuance. The permittee shall apply for a renewal of this permit at least ninety (90) days prior to the expiration date, in accordance with 314 CMR 7.09(3)(b) for continued lawful discharges beyond the expiration date.

h. All solids, sludge, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be collected, treated, and disposed of in accordance with applicable provisions in the following:

i. Hazardous waste regulations (310 CMR 30.000).

ii. Solid waste regulations (310 CMR 19.00).

iii. Sewer discharge regulations (314 CMR 7.00).

iv. Any other applicable federal, state and local laws.

i. All samples shall be analyzed by a Massachusetts Certified Laboratory.

j. The permittee shall provide the Department, and the Department's employees, authorized representatives and contractors, access at to the facility at all reasonable times, including during wastewater treatment system operation or wastewater discharge, for purposes of conducting activities related to oversight of this permit, including inspections to monitor compliance with the terms herein. The permittee shall allow the Department to obtain information related to compliance with the requirements of this permit. Notwithstanding any provision of this permit, the Department retains all of its access authorities and rights under applicable state and federal law.

G. Certification Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I certify that this facility is in compliance with all conditions and requirements of this permit, and all applicable statutes and regulations. I further certify that systems to maintain compliance are in place at the facility or unit and will be maintained even if processes or operating procedures are changed. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment of knowing violations."

(I will be responsible for publication of public notice of the applicable permit proceedings identified under 314 CMR 2.06(1)(a) through (d).)

Dan MacPhail
Printed Name of Applicant

Project Engineering Manager
Title

signature on original
Signature of Applicant

11/20/07 & 3/11/08
Date Signed

Name of Preparer

Title

Phone Number

MassDEP Use Only

Special Conditions:

See Attachment A.

This document is a permit issued pursuant to Massachusetts General Laws, Chapter 21, Section 43 and Massachusetts regulations at 314 CMR 7.00. The permittee shall comply with all of the provisions contained in the permit application which are hereby incorporated and made part of this permit.

5/19/08
Date Issued

5/19/08
Permit Effective Date

5/19/13
Permit Expiration Date

John F. Kronopolus
Name of Regional BWP Section Chief

John F Kronopolus
Signature

ATTACHMENT A.

Special Conditions:

1. The permittee shall maintain compliance with the Town of Ayer's sewer use requirements and the terms and conditions of any applicable wastewater discharge permits issued by the town.

2. The permittee shall have on site by July 1, 2008, engineering plans that are certified by a Massachusetts Registered Professional Engineer for the Vitasoy WWTP.

3. The documents and materials attached to and referenced in the permit application are incorporated as part of the permit.

ATTACHMENT B.

VITASOY

VITASOY USA INCORPORATED

Vitasoy USA Ayer MA, Wastewater Treatment Plant Descriptive:

- The plant is a biological system.
- All facility wastewater other than domestic enters the wet well in the screen room at the rear of the plant.
- Three pumps will then transfer the wastewater to 1 of 2 places: thru a screen to remove solids and into a transfer tank that then pumps it to a 129,000 gallon equalization tank or in case of a high strength liquid it can be diverted to a 26,000 gallon tank where it can be slowly fed back into the system.
- From the equalization tank the outflow is controlled to give a constant feed to the bio tower recirc tank. On Monday, the equalization tank is empty. Each day, some wastewater is retained in the equalization tank so by late Friday it is almost full to allow continued flow over the weekend thus avoiding large swings of flow to the system. Aeration is used in the tank to keep from going septic.
- From the bio tower recirc tank the wastewater is passed over the bio tower, dependant on BOD strength, in a ratio of water to air of 4:1, 8:1, or 12:1. Aeration is also used in this tank and pH adjustments are made at this point if needed to keep within discharge parameters.
- Outflow from the bio tower recirc tank goes into the clarifier where a slow moving rake system moves solids to one end of the tank where they are pump into a sludge holding tank. A flocculant is added to aid in solids removal.
- Sludge is pumped from the sludge holding tank into a tanker truck to be incinerated off site, approximately 8,000 gallons daily.
- Outflow from the clarifier passes thru the flume for flow measurement and is discharged into the town's system. An automatic sampler takes a 24-hour composite that is sent out for BOD, TSS, and other testing.

One New England Way, Ayer, Massachusetts 01432
Telephone 978.772.6880 Facsimile 978.772.6881 Web www.vitasoy-usa.com

ATTACHMENT C.

PROCESS DESIGN SUMMARY

RAW WASTEWATER CHARACTERISTICS

Average Daily Flow = Q_{ave} = 95,743 gallons
Minimum Daily Flow = Q_{min} = 0 gallons
Maximum Daily Flow = Q_{max} =166,500 gallons
Average BOD_5 = BOD_{5ave} = 1,717 mg/l
Maximum BOD_5 = BOD_{5max} = 2,494 mg/l
Average TSS = TSS_{ave} = 2,000 mg/l (estimated)
Production Period = 10-12 hours per day, one down day/week

RAW WASTEWATER LIFT STATION

Raw Wastewater Sump Capacity = 4,165 gallons at HWL
Number of Pumps = 3
Type of Pumps = Submersible, 5 HP each pump
Pump Performance = 178 GPM @ 26.5 ft. head
Lift Station capability one pump running = 178 GPM
Lift Station capability two pumps running = 356 GPM
Lift Station capability three pumps running = 534 GPM

RAW WASTEWATER SCREENING

Type of Screen = Static Sidehill
Number of Screens = one
Screen Size = 72 inch horizontal weth 0.30 openings
Hydraulic Capacity = 800 GPM

129K TRANSFER SYSTEM

Two Pumps = total output of raw wastewater sump
One Pump backup, One Pump on VFD to trim load

129K Tank

Monday empty, fills over week, empties on weekend

BIOTOWER
Containment Structure Diameter = 38 feet
Height of Media = 28 feet
Volume of Media = 32,000 cubic feet
Type of Media = Synthetic PVC sheet media , 27 - 30 square feet per Cubic foot, minimum void-to -volume ratio = 95 %
Recycle Ratios = Variable, 4:1, 8:1, & 12:1
Organic Loading = 43 lbs. BOD_5-day/1,000 cubic feet media At BOD_{5ave} and Q_{ave}
-108 lbs. BOD_5-day/1,000 cubic feet media at BOD_{5max} and Q_{max}

Wetting Rates = 904 GPD /1,000 square feet at recycle ratio 4:1
1,808 GPD /1,000 square feet at recycle ratio 8:1
2,732 GPD /1,000 square feet at recycle ratio 12:1

RECYCLE PUMP STATION

Volume = 35,000 gallons
Number of Pumps = 3
Type of Pumps = Submersible 20 HP each pump
Pump Performance = 712 GPM @ 59 ft. head
Recycle Ratio 4:1 = 712 GPM
Recycle Ratio 8:1 = 1,424 GPM
Recycle Ratio 12:1 = 2,136 GPM
Method of Mixing = aeration
Number of blowers = 2
Type of Blower = Centrifugal
Blower Performance = 130 CFM @ 4.3 PSIG
Air to Volume Ratio = 27 CFM/ 1,000 CF one blower running
Type of Diffusers = Fine Bubble
Sodium Hydroxide added for PH balance

EFFLUENT CLARIFICATION

Clarifier Size = 12 ft W X 50 ft. L X 9 ft. ave. depth
Clarifier Volume = 40,400 gallons
Overflow Rate = 425 GPD/ square foot @ average flow
1,275 GPD/ square foot @ peak flow
Number of Sludge Removal Pumps = 2
Type of Pumps = Submersible, 1 HP each pump
Pump Performance = 266 GPM @ 24 ft. head
Floculant added for suspended solids separation

SLUDGE STORAGE
Storage Tank Volume = 13,275 gallons
Number of Sludge Removal Pumps = 1
Type of Pump = Submersible, 5 HP
Performance of Pump = 266 GPM @ 24 ft. head

DESIGN EFFLUENT CHARACTERISTICS

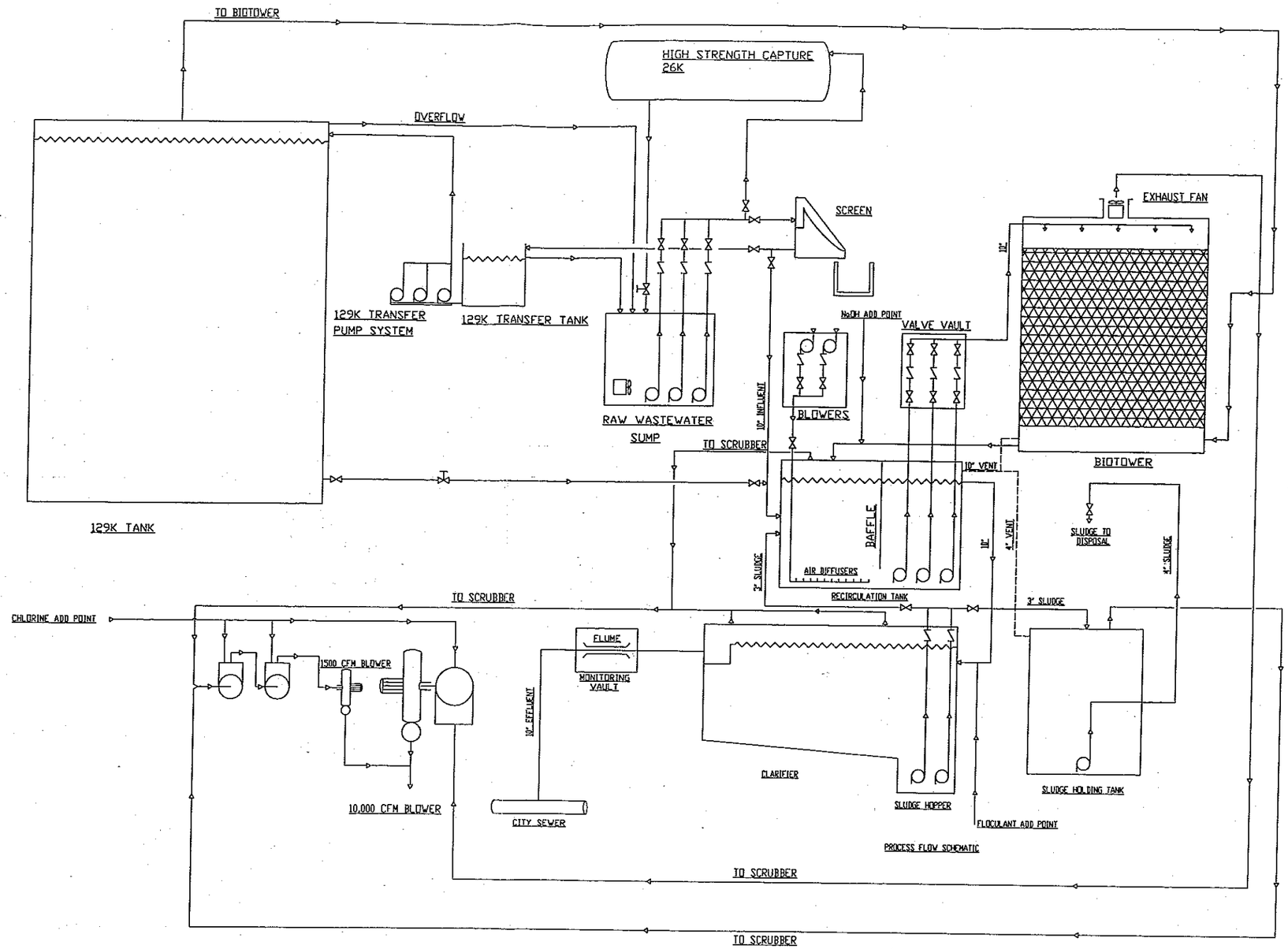
Average BOD_5 = 250 mg/l
Average TSS = 250 mg/l

EFFLUENT MONITORING

Type of Flow Measuring Device = Parshall Flume
Type of Flow Monitoring Device = Pressure Transducer - Continuous Strip Chart Recorder
Type of Effluent Sampling- Flow Proportional Composite Refrigerated

Air Scrubber System

1500 CFM blower for ventilation system on Sludge Holding Tank, Clarifier,and Recirculation Tank feeding into
10,000 CFM blower for Biotower ventilation system
Chlorine added for odor control
10" Duct from 129K equalization tank to air intake on Biotower



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	Air scrubber information added	2/14/07	DM
2	Added 129K vent pipe	2/12/08	DM

VITASOY

DRAWING TITLE Wastewater Plant			
DRAWING NAME Process Flow Schematic			
DRAWN BY BS	SIZE 11 X 17	DWG NO.	REV 2
	SCALE NTS	SHEET 1 OF 1	